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ABSTRACT

Mental health clinical services research has emphasized the urgency of developing new psychometric instruments for non-biased psychological assessment of minority and non-minority children of diverse cultural groups in the United States. Background multicultural standardization and validation information is presented for Tell-Me-A-Story (TEMAS)--a new thematic apperception test to assess personality functioning in Hispanic, Black, and White children. The test consists of 23 chromatic pictures depicting Hispanic and Black characters (Minority Version) and White characters (Non-Minority Version) interacting in urban settings. TEMAS protocols are scored for the adaptiveness of personality functioning based on each examinee's stories told in response to the pictures. The instrument's reliability was established in a study of 73 Puerto Rican students in kindergarten through grade 6 in New York City. The utility of TEMAS in predicting psychotherapeutic treatment outcomes was investigated with 210 school children in kindergarten through grade 3 in New York City. Results from a study with 296 psychiatric outpatients and public school students support the validity of TEMAS for discriminating between clinical and school groups of minority children. The TEMAS was standardized on a sample of 642 white and minority children (281 males and 361 females), with ages ranging from 5 to 13 years. A 40-item list of references is included. (Author/SLD)

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MULTICULTURAL STANDARDIZATION AND VALIDATION OF TEMAS, A THEMATIC APPERCEPTION TEST

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Running Head: Testing Multicultural Children

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ABSTRACT

Mental health clinical services research has stressed the urgency of developing new psychometric instruments for nonbiased psychological assessment of minority and non-minority children belonging to diverse cultural groups in the United States. This paper presents background multicultural standardization and validation of TEMAS (Tell-Me-A-Story), a new thematic apperception test to assess personality functioning in Hispanic, Black and White children. The test consists of 23 chromatic pictures depicting Hispanic and Black characters (Minority Version) and white characters (Non-minority Version) interacting in urban settings. TEMAS protocols are scored for adaptiveness of personality functioning based upon examinee's stories told in response to pictures. Research is reported on reliability, validity and verbal fluency. The TEMAS was standardized on a sample of 642 children (281 males and 361 females), with ages ranging from 5 to 13 years. The total sample represents four ethnic and racial groups: Puerto Ricans and other Hispanics, Blacks and Whites.

More than a decade ago, Padilla and Ruiz (1973) reported that very little research had focused on the psychological assessment of Hispanics, especially with projective techniques, and neglect of this research topic persists today (Rogler et al., 1983). The use of traditional thematic apperception tests, such as the TAT and CAT, has led to the evaluation of both Hispanic and black children as less verbally fluent and more psychopathological than their non-minority counterparts (Ames & August, 1966; Booth, 1966). Yet, these assessment practices are ubiquitous despite acknowledgement that the validity of projective techniques can be impugned with verbally inarticulate examinees (Anderson & Anderson, 1955). Hence there is a compelling need to develop psychological tests for reliable and valid diagnosis and personality assessment of ethnic racial and linguistic minority children (Padilla, 1979).

Furthermore, it has been documented that Black, Hispanic and other minority children have been diagnosed as handicapped and are disproportionally represented in special education classes for learning disabled and emotionally handicapped students. The cause of this overrepresentation has been attributed to discriminatory and biased intelligence, achievement, and projective tests (Ames & August, 1966; Cole & Brunner, 1971; Costantino & Malgady, 1983; Oakland, 1977; Olmedo, 1981; Padilla, 1979).

Simililarly, with respect to personality tests, especially projective tests, non-minority children have not fared equally well, when compared with their minority counterparts. The traditional thematic and projective tests such as the TAT, CAT, and Rorschach have been often criticized as being invalid and unreliable instruments in assessing personality functioning and psychopathology in children at large

(Gallager, 1979; Epstein, 1966; Murstein, 1963).

The problem of developing valid and reliable culturally-sensitive psychiatric evaluations and psychometric instruments is a serious one in a multicultural and pluralistic American society and is compounded when we endeavor to establish valid psychiatric diagnoses and assessment for various ethnic/racial groups (Good and Delvecchio-Good, 1986; Malgady, Rogler and Costantino, 1987).

Development of TEMAS

Based upon these considerations, the TEMAS thematic apperception test was developed with structured, familiar and culturally relevant stimuli. There are two parallel sets of TEMAS, minority and non-minority versions (Costantino, 1986). The minority and non-minority version of TEMAS consists of 23 chromatic pictures depicting minority and non-minority characters in urban setting. The test embodies the following features: (1) use of structured stimuli and diminished ambiguity to pull for specific, covert behaviors and internal dialogues; (2) use of chromatically attractive, ethnically relevant and contemporary stimuli to elicit diagnostically meaningful stories; (3) representation of both negative and positive intrapersonal and interpersonal situations in the form of conflicts or dilemmas which require a resolution; (4) assessment of cognitive, affective, and personality functions; and (5) use of an objective scoring system in analyzing TEMAS stories, which assesses both the structure and content of the stories (Costantino, 1978).

The theoretical framework as the underlying construction of TEMAS test is based generally in the traditional ego psychology theory as represented in Bellak, HUrick and Gedimad (1973), in the dynamic motivational psychology proposed

initially by McClelland and Atkinson (1953) and more recently articulated by Atkinson (1981), and in the cognitive and social learning theories (Bandura 1977, Piaget 1971).

Accordingly, personality structure is conceived within this framework as a constellation of latent motives or ego functions which are defined as internalized dispositions that interact with environmental stimuli to determine overt behavior in specific situations. Since these dispositions are not directly accessible to clinical inquiry, projective techniques prove to be useful tools for probing beneath the surface structure of "phenotype" of personality "genotype" (1981). Access to the genotypic structure of personality is accomplished by projective test stimuli that provoke imaginative or fantasy processes in telling stories about stimuli. Therefore, motivational theorists maintain that projective tests assess relatively stable individual differences in the strength of underlying motives, which are behaviorally expressed in thematic content, and also reveal individual differences in the antecedent developmental histories of examinees. Based upon this reasoning, Atkinson (1981) contends that the analysis of thematic content has a "more solid theoretical foundation than ever before and must. . .be considered the most promising and virtually untapped resource for future study of personality." Furthermore, developmental and learning theorists (Bandura, 1977; Piaget, 1962; 1971) have suggested that personality functions are acquired through modeling, and then psychologically instantiated through verbal and imaginal processes. Hence, advocates of projective techniques conclude that since personality functions are acquired within a given sociocultural context, they are readily transferred to the testing situation and projected into thematic content when the stimuli are similar to

the circumstances in which these functions were originally learned (Auld, 1954).

Based on this theoretical rationale for the thematic apperception technique in studying personality, TEMAS was developed in response to the concerns, raised earlier, about assessment of ethnic and linguistic minority children. Consequently, the traditional TAT was modified in TEMAS by presenting ethnically pluralistic characters in familiar settings, while engaging in antithetical situations representing common problematic circumstances in urban life (Costantino, 1978). Thus TEMAS is an attempt to increase the ethnocultural relevance of projective stimuli to culturally diverse children, and to present familiar scenes associated with life experiences in inner-city settings. The rationale for these and other departures (e.g., reduced ambiguity, chromaticity) from traditional thematic apperception with the TAT, and is summarized below.

The presentation of culturally relevant and familiar stimuli in projective tests was explored early on by Thompson (1949) who developed a Black TAT based upon the assumption that similarity between the stimulus and the examinee promotes identification with the characters in the pictures, and therefore, provokes greater verbal fluency and self-disclosure. Traditionally, projective techniques have embraced the psychodynamic notion that ambiguous stimuli bypass the examinee's ego defenses, thereby allowing latent psychological conflicts to be more freely expressed (Murstein, 1963). However, TEMAS was conceived following more recent thinking that diminished ambiguity and increased structure in projective stimuli facilitate verbal fluency and yield a more focused understanding of the examinee's personality functioning (Epstein, 1966). That is, when projective stimuli are structured to "pull" specific personality functions (unlike ambiguous stimuli), the

diagnostician may achieve a more reliable and valid clinical interpretation of thematic content.

Both clinicians and researchers alike acknowledge that color has strong impact on the perception of Rorschach cards, (Murstein, 1963) and that integration of color and form is considered a sign of emotional growth and cognitive organization (Siipola, 1959). During the early 1950s several studies documented that chromatic TAT pictures more accurately discriminated between clinical and control subjects that achromatic pictures also enhanced verbal fluency (Brackbill, 1951; Thompson and Backrach, 1951). Murstein (1963) explained that color facilitates differentiation between thematic responses of psychiatric and normal examinees, apparently since achromaticity reinforces sadness as an effective response to TAT pictures. Thus, based upon this evidence, TEMAS pictures were developed in life-like color.

The presentation of psychological conflict in TEMAS pictures was based on the methodology of Kohlberg (1976) who suggested that moral judgment develops only when the child is able to understand reversible operations which are antithetical in nature. Hence, Kohlberg developed a series of stories portraying antithetical moral dilemmas in order to assess the moral development of children. Similarly, TEMAS pictures portray a split scene showing psychological dilemmas which require a resolution (e.g., playing with friends versus complying with a parental request). Like Kohlberg's moral dilemmas, TEMAS examinees must resolve the antithetical situations portrayed in the split pictures; and the examining clinician evaluates the adaptiveness of their resolution of the conflict. The antithetical situations depicted in TEMAS pictures were designed to evoke disclosure of specific personality

functions which are prominent in personality theory and also are key diagnostic indices of psychopathology: Interpersonal relations, aggression, anxiety/depression, achievement motivation, delay of gratification, self concept of competence, self/sexual identity, moral judgment, and reality testing (Bellak, Hurvich and Gediman, 1973; Costantino, 1978).

An initial set of TEMAS pictures was drawn by a professional artist, who worked closely with the test author (Costantino, 1978) in an attempt to pictorially represent the psychosocial situation described to him. In some situations characters are shown engaging in internal dialogues, such as a child in front of a piggybank with a coin in hand imagining buying an ice cream cone immediately, or saving money to buy a bicycle in the future. This picture represents ambivalence associated with ability to delay gratification (Mischel, 1966). Other pictures, such as 9B and 9G are pictorial representations of the poem "The Road Not Taken," by Robert Frost. This pictures depict a boy or girl at a crossroad in a forest undecided to take the road already taken by his or her peers, or to take the road already taken by his or her peers, or to take the road which no has taken (evoking interpersonal relationships and anxiety feelings). In general the TEMAS pictures embody a wide variety of problematic life situations and experiences in urban settings. Themes include intrafamilial scenes within the home, solitary dream-like and fantasy states, street scenes involving peers and adults, sports activities, and situations occurring in school settings. The antithetical situations portrayed in the pictures accommodate a balance of positive or negative feelings to be projected in thematic content, manifested behaviorally in either adaptive or maladaptive resolutions of the dilemmas presented. These topics are structured to pull themes expressive of

varying degrees of psychopathology ranging from severe pathology (e.g., morbidity, suicide, depression, gender confusion, impulsivity, isolation, delusion) to lack of pathology. Some samples of underlying motives revealed in thematic content which vary in level of expressed psychopathology are provided in the scoring procedures. Extensive examples can be found in the TEMAS manual (Costantino, Malgady & Rogler, 1988).

Administrative and Scoring

After establishing rapport with the examinee, the examiner introduces the test with the following instructions: "I have several interesting pictures that I am going to show you," look at the persons and places in the pictures and tell me a complete story about each picture, one that has a beginning and an end. The story should answer three questions: "What is happening in the picture now? What happened before? What will happen in the future?" Following presentation of a picture, the examiner records the examinee's verbal reaction time and also the total storytelling time. The minimum time for a story is typically five minutes.

Inquiries are conducted to elicit the identity and interrelationships of the characters, identification of settings, and the affective state of the main character if this information is omitted. The examinee should be given the opportunity to tell a complete story in a spontaneous manner (i.e., without prompting). A story is complete if it relates: (1) the identities and relationships of the characters, the setting, and what the characters are doing; (2) what the characters did before; (3) what the characters are doing in the future; and (4) what the main character is thinking and feeling upon the resolution of the antithetical situation.

Stories are recorded verbatim by the examiner. The full 23 pictures are administered either in two one-hour sessions, or in one session with a break after one hour. Administration of the short form (consisting of 9 pictures) should be completed within 45 minutes in one session, generally without interruption.

Personality functions are scored on a Likert-type, four point scale according to age-appropriate behavior as follows: A score of "1" indicates the presence of a highly maladaptive resolution of conflict. For example, themes of murder, rape and assault are always scored "1" for interpersonal relations, aggression and moral judgment. A suicidal theme earns a "1" under the anxiety/depression function. The decision to drop out of school or steal rather than work results in a "1" for achievement motivation and delay of gratification. The anticipation of complete failure and concomitant refusal to attempt a given task results in a "1" for self concept of competence. A character who changes sexes or rejects his or her gender earns a "1" in sexual identity. Scores of "1" in moral judgment reflect a total lack of regard for the consequences of antisocial behavior. Severely impaired reality testing would be scored only for the most bizarre and impossible resolutions (e.g., inanimate objects come alive and kill; a child causes harmful events to occur by a strange power of the mind). A score of "2" for any personality function reflects a moderately maladaptive resolution. For example, children cheat and get away with it; a conflict is resolved by fighting; money is squandered rather than saved; homework is avoided in favor of play; a child runs away from home never returns. A score of "3" represents a partially adaptive resolution. For example, children who cheat are caught and punished; fighting ceases in favor of compromise; money is saved for a time and then spent; homework is grudgingly completed; a runaway child returns

home. A score of "4" represents a highly adaptive resolution reflecting a sol the problem in a mature, viable manner. There is implicit in a score of "4", a for the greater good, sense of responsibility and an intrinsic motivation. For example, a child rejects the notion of cheating as contrary to learning; confl discussed and compromises reached; money is saved for the future; homew completed because good grades are valued; a child decides to talk to paren than run away.

When a Personality Function of a particular card is pulled, that is, ve in the story, the corresponding score of "1", "2", "3", or "4" is entered into the appropriate triangle on page 2 of the Record Booklet. Conversely, when a Personality Function of a particular card is not pulled, an "N" (for "not pulle recorded in the appropriate triangle on page 2 of the Record Booklet. For e personality function, the respective scores showing in the triangles are added each column and recorded at the bottom box of the particular function. The scores are then compared with the T-scores in the appropriate Tables. Like each Personality Function, the number of "Ns" appearing in the triangles are and entered at the bottom in the boxes labeled "Sum of Functions Not Pulle These raw scores are then compared to the critical cutoff values of the "N-V Tables.

In addition to personality functioning, TEMAS is also scored for a nu cognitive functions such as number of unanswered inquiries, reaction time (s storytelling time (min), and verbal fluency (word count). Perceptual style is for omission, and transformation of perceptual details. Omissions and transformations of perceptual details in the pictures is scored when the deta

related to the identity of the main and secondary characters, event and setting. Affective functioning is scored with respect to the emotional state attributed to the main character at the end of the story after resolution of the conflict. The main character's affect is recorded as happy, sad, angry, fearful, neutral or ambivalent. In addition the congruence of this affective state with the content of the story is noted. Both cognitive and affective functions are tabulated by summing frequency of occurrence across pictures and the raw scores are compared to the T-score values or critical cutoff values in the appropriate tables (Costantino, Malgady, & Rogler, 1988).

Preliminary Studies

A pilot study was conducted with a group of eight children ranging in age from 6 to 12. Each child was asked to tell a story about each picture, responding to the questions: What is happening? Who are these characters? Are they related? What are they saying? Where are these people? Children were retested after a four-month interval to establish test-retest-reliability. Only those pictures which reached a .80 inter-child agreement and .90 test-retest stability on all five questions were retained (Costantino, 1986). A revised set of cards was developed, resulting in a reduction to 23 pictures, 12 for both sexes and 11 sex-specific (Costantino, 1986).

A study was conducted to assess the concordance among a sample of 14 practicing school and clinical psychologists, recruited from community mental health centers and public schools in New York City. Psychologists averaged nearly 8 years experience in testing and counseling minorities and 9 year experience in administering projective techniques. With respect to ethnicity, seven where white,

one was black and six were Hispanic. Clinical orientation of the psychologists included eclectic, analytic/dynamic, cognitive, and system approaches. The psychologists were presented the TEMAS pictures and asked independently to indicate which, if any, of the nine personality functions were pulled by each picture. They also were given the liberty of suggesting pulls other than the nine listed by the author. Results indicated substantial concordance among clinicians regarding the pulls of TEMAS pictures, ranging from 71-100% agreement. These results, then served to define and corroborate the specific personality functions to be scored with each picture.

Since verbal fluency is the sine qua non of validity with projective techniques (Anderson & Anderson, 1955), two preliminary studies were conducted to compare minority examinees' articulateness on TEMAS versus the TAT. In the first study, Costantino, Malgady and Vazquez (1981) administered six TAT and minority TEMAS pictures to fourth and fifth grade Hispanic children. Results of this study indicated that Hispanic children were significantly more verbally responsive to TEMAS pictures than TAT pictures, and this effect was more enhanced for females than males. Furthermore, results indicated that when bilingual children told stories in response to the TAT stimuli, they spoke English, and when they told stories in response to the TEMAS stimuli, they spoke Spanish. Those unpredicted significant results tend to validate the identification of the Hispanic children with the TEMAS characters and thus point out the cultural sensitivity of the test. Similar projective findings are reported in the cross-cultural studies of the "fruit-tree experiments" (Adler, 1982). Consequently, a second study was conducted (Costantino and Malgady, 1983) with a larger number of TEMAS and TAT pictures to enhance

internal consistency reliability of the data, broadening the age range of examinees (grades k-6), comparing both Hispanics and blacks to a white examinee group. The results of this study corroborated the sex differences in verbal fluency reported by Costantino, Malgady;, and Vazquez (1981), and also showed that Hispanics and Blacks were more verbally fluent on TEMAS compared to the TAT while whites showed trends toward significance. Thus, these findings provide a cornerstone for the potential validity of TEMAS.

Psychometric Properties of TEMAS

Previous research established an objective consensus for scoring TEMAS protocols, temporal stability of thematic content, and that minority examinees are more articulate on TEMAS relative to the TAT. The next study investigated the reliability of scoring TEMAS pictures and potential differences as a function of sex, age and SES. The examinees were 73 Puerto Rican students attending grades k-6 (mean age = 9 years old) in public schools in New York City. With respect to the occupational scale of Hollingshead's Index of Social Position, examinees were from low to low-middle class families. According to teacher and parent reports, examinees were not undergoing psychotherapy for psychological disturbance, nor presenting significant behavioral problems in school. TEMAS was administered with the 23 pictures presented in random order by bilingual Hispanic examiners. All examinees were tested in their dominant language, individually by graduate psychology students in two testing sessions conducted in the public schools. Examinees subsequently responded by telling a story about each picture for typically two to five minutes, which was recorded verbatim by the examiner. In the case of

examinees who responded in Spanish, after being recorded in Spanish, stories were translated into English. All tests were scored by bilingual graduate psychology interns, who were blinded to examinees' demographic background.

Internal consistency reliability of TEMAS indices was estimated by computing coefficient alpha. Reliability of personality functioning indices was computed only on particular pictures intended to "pull" specific functions. Pictures pulling interpersonal relations, aggression, and moral judgment were highly internally consistent (= .72 to .92), whereas anxiety/depression, achievement motivation, delay of gratification, self-concept of competence, sexual identity, and reality testing evidence much lower reliabilities (= .45 to .65). In part, reliability of the latter functions may be attributed to attenuation by "test length"; that is, scores are based on relatively few (3 to 8) TEMAS pictures. Interrater reliability in scoring TEMAS protocols was investigated in 1983 and in 1987 by comparing two independent raters' evaluations of randomly selected samples of 27 and 20 protocols, respectively. In the early study interrater correlations ranged from r = .50 to r = .68; in the later study, the interrater agreement ranged from 75% to 95% for various personality functions. The mean level of interrater agreement was 81% in the second study. The explanation for this discrepancy may be associated with the fact that at the time of the second study, the TEMAS scoring system and instructions were completely formulated. TEMAS indices were correlated with age, sex (dummy coded), and socioeconomic status (SES). By and large, the patterns of correlations observed suggested that TEMAS scores are virtually independent of age, although statistically significant (p.05), but low negative correlations exist between age and aggression (- .26), and sexual identity (- .34). All correlations with sex were

negligible. Finally, SES had no significant influence on TEMAS scores, possibly due to its restricted range.

A follow-up study was conducted with sample of examinees screened for presenting severe behavioral problems in school, prior to their referral for psychotherapeutic treatment. This study sought to gather evidence of validity, both concurrently and predicting psychotherapeutic treatment outcomes. The examinees in this study were recruited from grades k-3 in New York City public schools. Of nearly 900 students screened by teacher rating, 210 (120 male, 90 female) falling below the median rating were solicited for participation in the study, and for subsequent referral to participate in a comparative study of psychotherapeutic treatment modalities (Costantino, 1979). Examinees' families were from low to lower-middle class, based on the occupational scale of Hollingshead's Index. They were administered TEMAS pictures as in the prior study, and in order to determine the relationship of TEMAS personality assessment to intellectual functioning, they were also administered three subtests of the WISC-R (in Spanish, Escala de Inteligencia Para Ninos): Vocabulary, Comprehension, and Similarities. For the purpose of establishing concurrent validity, examinees were administered four criterion tests, and their adaptive behavior in experimental role-playing situation was observed and rated by examiners.

Each TEMAS index was correlated with subjects' sex (0=male), (1=female); age, and WISC IQ (vocabulary, comprehension and similarities subtests). There were no significant sex or IQ effects on TEMAS indices, but age effects were low to moderate (rs= .16 to .37). Results of multiple regression analyses indicated that TEMAS profiles significantly (p .05) predicted ego development (sentence

completion test) (R = .49); and observations of delay of gratification (R = .32), self concept of competence (R = .50), disruptive behavior (R = .51), and aggressive behavior (R = .32). However, there was no significant multiple correlation with respect to trait anxiety. Thus, multiple regression coefficients ranged from .32 to .51, providing moderate evidence of concurrent validity for TEMAS profiles with respect to these selected criterion-related measures.

In an effort to evaluate the utility of TEMAS profiles for predicting psychotherapeutic treatment outcomes, a random sample to 210 children were randomly assigned to three therapeutic interventions (Costantino, 1979). Criterion tests and role-playing situations were administered again after 20 weekly treatment sessions. Hierarchical multiple regression analysis was used to test the utility of TEMAS profiles in predicting post-therapy scores on the criterion-related measures independent of pre-therapy scores.

Multiple correlation coefficients for predication of criterion-related measures and observation ratings were statistically significant (p .05) and high with respect to ego development (R = .69), trait anxiety (R = .64), mothers' and teachers' behavior ratings (R = .64 to .71), delay of gratification (R = .67), disruptiveness (R = .57), and aggression (R = .63). Self concept of competence was not significantly related to TEMAS. Further, TEMAS profiles appear to provide extremely useful pre-therapeutic information, in the sense that 6-22% of the variance in post-therapy outcomes was predictable from TEMAS pretests independent of criterion pretests. Thus, this analysis lends support for the clinical utility of TEMAS as a tool for evaluation of psychotherapeutic outcomes (Malgady, Costantino, and Rogler, 1984).

Discriminant analyses were conducted with Hispanic (N = 138), Black (N = 73), and White (N = 85) outpatients at psychiatric facilities and children in public schools in New York City. Hispanics and Blacks were administered the minority TEMAS, and Whites were administered the parallel non-minority TEMAS. Results indicated further support to the validity of the TEMAS test for discriminating between clinical and school groups of minority children; classification accuracy was 89% for Hispanics and Blacks. Furthermore, Personality profiles discriminated the groups of outpatients and students with 89% accuracy for Whites. Within the clinical sample, the TEMAS indices did not discriminate significantly between different DSM-III classifications of disorders of childhood and adolescence. (Costantino, Malgady, Rogler & Tsui, 1988; Costantino, Malgady, Bailey & Colon, 1988).

Standardization

Standardization Sample. The TEMAS was standardized on a sample of 642 children (281 males and 361 females) from public schools in the New York City area. These children ranged in age from 5 to 13 years, and had a mean of 8.9 years (SD = 1.9). The total sample represents four ethnic groups: Blacks, Puerto Ricans, and other Hispanics and Whites.

Data on the socioeconomic status (SES) of the standardization sample indicate that these subjects were from predominantly lower and lower-middle-income families.

Quantitative Scales and Qualitative Indicators

The nature of the distribution of some TEMAS functions made it impractical to convert them to standard scores. Essentially, for these functions, scores other than zero were rare in the standardization sample. These functions were designated "Qualitative Indicators." The TEMAS functions which had relatively normal distributions were designated "Qualitative Scales."

Because of the distributions of Reaction Time and Fluency were extremely positively skewed, natural log transformations of these variables were used in the statistical analyses.

Stratification of the Standardization Sample

In standardization sample, significant correlations of low magnitude were found between age and many of the TEMAS functions. Correlations ranged from .01 to .25 with a median value of .10. Although these correlations are small, it is believed that they reflect real developmental trends in children's cognitive, affective, and personality functioning. Thus, in order to accommodate the effects of these trends while still retaining respectable sample sizes, age was collapsed into three age-range 5- to 7-year olds, 8- to 10-year olds, and 11- to 13-year olds.

For the Quantitative Scales, a series of three-way analyses of variance (ANOVAs) were computed by age, ethnic/racial background and sex of the standardization sample. The three-way interaction terms were not significant for any of the quantitative functions. The two-way interactions between sex and age were also nonsignificant for any of these functions. However, the two-way interaction of sex and ethnic/racial background was significant for 1 of the 17 Quantitative Scales--Sexual Identity, F (3,483) - 2,64, p .05. However, given the number of variables

tested, this result may be attribute to chance.

Because the interactions of gender and ethnic/racial background were not inconsistent with what would be expected by chance, T tests were computed for the Quantitative Scales grouped by sex alone. These tests revealed no significant differences for any of these functions. This result is consistent with the results of other studies which have investigated the effects of gender on TEMAS functions.

The interaction of ethnic background and age was significant for only 1 of the 17 Quantitative Scales--Omissions, $F(6,358) = 2.50$, p .05. Once again, this result may be attribute to chance. Therefore, the main effects of age and ethnic background were examined directly.

Based on the results of the above analyses, the standardization sample was stratified by age and ethnic background, but not by sex.

"Short Form". Means and standard deviations were derived by extracting the scores of the 9-card Short Form from the 23-card Long Form protocols of the standardization sample. It is important to note that, because the norms provided in the Manual are not based on the scores of children who were actually administered the Short Form, clinicians should exercise appropriate caution when using them to interpret Short Form scores.

Relationship Between the Long and Short Forms

The correlations between the 23-card Long Form of the TEMAS and the 9-card Short Form for each function were computed separately for the total sample and for each ethnic group. The correlation between the Long Form and the Short Form was uniformly high across samples. The median correlation between forms

was .81 for the Total Sample, .82 for Whites, .80 for Blacks, .80 Puerto Ricans, and .81 for other Hispanics. It should be noted that, to some extend, these correlations are somewhat spurious since the 9-cards making up the Short Form are also included in the total score of the 23-card Long Form.

Derivation of Standard Scores

To enable users to directly compare scores within a single protocol, and to facilitate comparison with the performance of the standardization sample, raw scores of the Quantitative Scales were converted to normalized T-scores. To minimize irregularities in the raw score distribution, an analytic smoothing technique was also used (Cureton & Tukey, 1951).

The user should note that the standard scores were not designed to be representative of the responses of each of the ethnic/racial groups from which they were drawn. As was indicated earlier, a stratified sampling procedure was not utilized in the sample selection. Thus, clinicians must exercise caution when interpreting these scores. It is also noteworthy that the clinical samples may appear more adjusted in their scores than the nonclinical samples on some of the functions. Malgady, Costantino and Rogler (1984) posit that this is partially due to the finding that clinical respondents are, in general, less emotionally expressive than non-clinical respondents in telling their projective stories from TEMAS stimuli.

As mentioned earlier, since it was found to be appropriate to transform raw scores of the Qualitative Indicators to standard scores, critical levels based on the raw score distributions have been provided. These cutoff scores allow clinicians to determine whether a child's score on a Qualitative Indicator is at or above the 90th

Percentile of the standardization sample.

Discussion

The TEMAS test (Minority Version) was originally developed as a clinical tool presenting ethnically familiar characters in urban and fantasy settings, in order to facilitate minority children's identification with the stimuli and thereby enhance verbal fluency and self disclosure. Subsequently a non-minority version presenting white and pluralistic characters was developed. Earlier studies with New York City urban examinees indicated that Hispanic and Black children are more verbally fluent in telling stories about TEMAS stimuli than the TAT (Costantino, Malgady, & Vazquez, 1981; Costantino & Malgady,d 1983), thus establishing a potential for valid personality assessment of minority children. Furthermore, an early study also indicated that bilingual Hispanic children told stories in Spanish in response to the TEMAS cards, whereas, they significantly told stories in English in response to the TAT pictures, thus indicating some evidence of cultural-sensitivity of the instrument. Other studies established the reliability of TEMAS, some evidence of concurrent validity, and clinical utility for predicting psychotherapeutic treatment outcome (Malgady, Costantino & Rogler, 1984; Costantino, Malgady & Rogler, 1986). Moreover, results of more recent studies lend further support to the validity of the TEMAS test for discriminating between clinical and public school groups of minority and non-minority children, where classification accuracy was 89% for Hispanics and 91% for Blacks, and 86% for Whites. However, within the clinical groups, the test did not discriminate between different DSM-III diagnostic categories (Costantino, Malgady, Rogler & Tsui, 1988). This study also indicated the clinical utility of TEMAS with nonminority children. This rather disappointing finding may not

reflect the poor diagnostic discriminant validity of the test, but other contributing factors were the small sample sizes within diagnostic categories and perhaps the questionable reliability of the diagnoses rendered at the outpatient psychiatric facilities. Based upon these findings, it appears that the TEMAS test may be useful as a "barometer" indicative of general levels of psychopathology, but profiling specific diagnoses is premature.

Nevertheless, the somewhat high discriminant validity of the test tends to indicate that TEMAS is a culturally-sensitive test which is less likely to be biased toward both ethnic/racial minority and culturally diverse children. Historically, both intelligence and projective tests have been identified as the cause of biased assessment and the disproportionate referrals and overrepresentation of Hispanic, Black and other minority children in Special Education Classes (e.g., Oakland, 1977; Olmedo, 1981). Furthermore, the large multicultural diversity of children in the American society call for the development of cross-cultural norms for projective tests as advocated by Exner & Weiner (1982) and Dana (1986) in order to reduce the culturally biased assessment practices. The TEMAS test with his promising psychometric findings on reliability and validity and the development of norms for culturally diverse groups, such as Puerto Ricans, other Hispanics, Blacks and Whites (Costantino, Malgady & Rogler 1988) shows to be a useful instrument for the non-biased assessment of cognitive, affective and personality functions of minority children and a valid assessment of non-minority children within both the school and clinic settings.

Author's Notes

The present paper is based on the TEMAS (Tell-Me-A-Story) Manual, published by Western Psychological Services, 12031 Wilshire Blvd., Los Angeles, California 90023.

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